



MICHAEL WONG

PROFESSOR
CHEMICAL & BIOMOLECULAR ENGINEERING
RICE UNIVERSITY

AN ENGINEERING STRATEGY TO CLEAN WATER USING NANOPARTICLES AND CATALYSIS

Groundwater remediation through the catalytic breakdown of the undesired contaminants is a more effective and desirable approach than the conventional physical displacement methods of air-stripping and carbon adsorption. Palladium (Pd) catalysts are known to catalyze the reductive conversion of halogenated organic compounds in water, at room temperature, and in the presence of hydrogen. In this talk, I will describe how one can dramatically improve the hydrodechlorination catalytic power of Pd metal by combining it with gold, how this approach can work on real groundwater systems, and how this example can yield lessons on improving the performance of materials by controlling their structural properties at the nanometer scale.

Biography

Michael Wong is Professor of Chemical and Biomolecular Engineering, and Professor of Chemistry. He received his B.S. from Caltech (1994), and M.S. (1997) and Ph.D. (2000) from MIT, all in Chemical Engineering. He did his post-doc with G. D. Stucky in the Department of Chemistry and Biochemistry at UC Santa Barbara, before coming to Rice University in 2001. His team of post-docs, graduate students, and undergraduates seeks to design and synthesize nanoparticle-based materials that address chemical engineering problems; to develop new chemical techniques to achieve these materials; and to deepen the understanding of underlying fundamental processes at the molecular level. His research program straddles the interfaces of Chemical Engineering, Chemistry, and Materials Science. Among other recognitions, he received an MIT TR35 Young Innovator Award, a Young Innovator Award in the Arts and Sciences by the Smithsonian Magazine, and a Nanoscale Science and Engineering Forum Young Investigator Award from AIChE. He is Past Chair of the Southwest Catalysis Society and Chair of the AIChE Nanoscale Science and Engineering Forum. He is an Associate Editor for *Journal of Nanomaterials*, and serves on the Editorial Advisory Board for *Chemistry of Materials*.

FRIDAY NOVEMBER 5, 2010
9:30 - 10:30 AM
EBU II 205/206